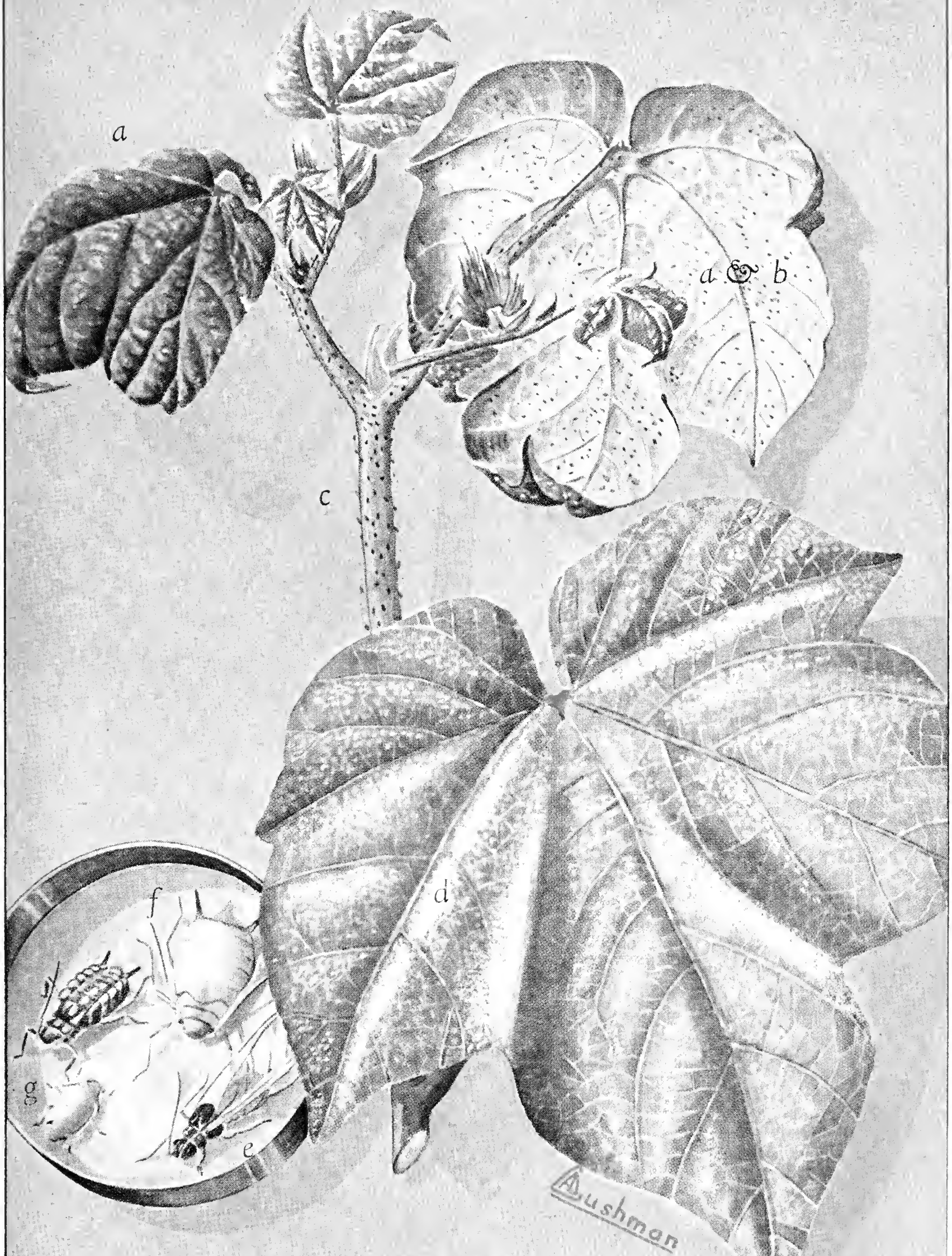
COTTON APHID



a, Curled infested leaves; *b*, aphids on under side of leaf; *c*, aphids on stem; *d*, honeydew on leaf; *e*, winged female; *f*, wingless female; *g*, young. *a*, *b*, *c*, and *d* actual size; females and young about 14 times actual size.

(See other side for life history and control)

Picture Sheet No. 17

Bureau of Entomology and Plant Quarantine, Agricultural Research Administration, United States Department of Agriculture

COTTON APHID

(*Aphis gossypii* Glov.)

Life History

The cotton aphid, also known as the cotton louse and the melon aphid, is found throughout the United States. It is a general feeder and, in addition to damaging cotton, is a pest of okra, melons, squash, cucumbers, and other cucurbits. It is a small, soft-bodied, sucking insect, its color ranging from light yellow to dark green or almost black. In the Northern States both sexes occur and eggs are laid, but in the South only females that give birth to living young are known. Some of the adults are winged for flying to other plants, while others are wingless. The aphids spend the winter on various weeds, from which they spread to cotton early in the spring. Reproduction is continuous throughout the year in the South and becomes very rapid during warm weather. There are no distinct broods, and aphids of all sizes are present on the under side of the leaves and on the stems of plants. The natural controls, such as ladybird beetles and other predators, parasites, diseases, and unfavorable weather, are important factors in controlling aphids. Aphids are present in almost every field of growing cotton, and during cool, wet springs they often cause curling of the leaves, stunting of growth, or even the death of small cotton seedlings. The greatest damage, however, is done later in the season by causing the leaves to curl and fall from the plant before the bolls are mature. The premature shedding of leaves causes serious losses in yield and grade of cotton. Aphids secrete a sticky substance known as honeydew, which drops on the leaves and bolls below and gives the plants a glossy appearance. A fungus often develops in the honeydew and causes the plants to appear black, or sooty. Honeydew falling on the open bolls also makes the lint gummy and difficult to gin.

Control

Aphids are more likely to damage cotton that has been dusted with arsenicals or DDT than they are undusted cotton. It is more profitable to prevent the aphids from becoming numerous by adding nicotine to the calcium arsenate or other dusts used to control cotton insects than it is to control an aphid outbreak. Adding 1 percent of nicotine to the calcium arsenate used in each application, or adding 2 percent of nicotine to the calcium arsenate used for every other application, will prevent aphids from building up injurious populations. After heavy infestations have developed, 3 percent of nicotine in hydrated-lime dust at 6 to 8 pounds per acre may be needed for control. A 1-percent nicotine dust can be prepared by adding 1 quart of nicotine sulfate solution (40-percent nicotine), and the 2- and 3-percent dusts by adding 2 and 3 quarts of nicotine sulfate, to approximately 100 pounds of calcium arsenate. Other forms of nicotine, such as free or fixed nicotine, are as satisfactory as the sulfate when used at the same strengths. Nicotine can be added to DDT dust in the same way as to calcium arsenate. The nicotine must be thoroughly mixed with the other insecticides, preferably with special mixing machinery in a commercial plant. The best aphid control is obtained by applying nicotine *when the air is very quiet.* It is necessary that the dust containing nicotine stay down among the plants, not rise and float away as often happens when dust applications are made during midday. Complete coverage of the plants is necessary.

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